

PROJECT MANUAL
FOR
ROOF REPLACEMENT
AT
VISITOR CENTER OUT BUILDINGS
18751 HOGABOOM LANE
ST MARY'S CITY, MARYLAND 20686
FOR THE
DEPARTMENT OF PLANNING
DGS PROJECT NO. SM-000-230-003
PROJECT COST CLASSIFICATION A
February 28, 2023

NOTICE:

"Minority Business Enterprises are Encouraged to Respond to this Solicitation"

STATE OF MARYLAND

DEPARTMENT OF GENERAL SERVICES
Atif Chaudhry, Secretary
301 West Preston Street, Room 1405
Baltimore, MD 21201

BOARD OF PUBLIC WORKS
Wes Moore, Governor
Brooke E. Lierman, Comptroller
Derek E. Davis, Treasurer

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SECTION 011100
SUMMARY OF WORK
PROJECT #

A. General Scope of Work:

The successful contractor shall provide all labor, equipment, tools, materials and supplies required for replacing existing Roofs on Various Buildings with synthetic shakes @ Historic St Mary's City, 18751 Hogaboom Lane, St Mary's City, MD 20686, in accordance with the terms, conditions and specifications.

B. Description of Work:

1. Visitor Center out Buildings, Remove existing cedar shingle roof system down to decking and replace any bad decking (unit price #1)
2. Install new EcoStar Seneca Polymeric Shake Tile (or approved equal) roof system, per manufacturer's recommendations. Roofs are to match Visitor Center roof in style and color.

C. Site Conditions:

1. This buildings will be routinely occupied and remain in operation during the construction period. Coordinate all construction operations with Historic St Mary's City POC. Plan and execute all work to minimize interference with the normal function of the Owner's facilities.
2. The site and all areas of construction activity which are occupied by the Owner's operations shall be kept clean of construction debris and dirt on a continuous basis and all areas and items left in a safe condition for occupancy. Remove all debris and surplus materials on a daily basis. At completion of the work, remove all debris and surplus materials and leave the site completely clean.
3. All agreed upon schedules shall be placed in writing with copies to the Owner's representative.
4. Temporary Toilet Facilities: Provide self-contained portable toilet facilities with maintenance service. Locations on site to be approved by the Owner.
5. Limit use of the premises to areas affected by construction activities. Keep all driveway and parking areas clear of material, debris and equipment at all times so as not to interfere with the usual traffic or emergency vehicles serving the facility.
6. Maintain the building in a weather tight condition throughout the construction period. Repair damage caused by construction activities. Take all precautions necessary to protect the building and occupants during the construction period. Materials and tools may not be stored within the building unless permission is granted in writing by the Owner.
7. Cooperate with the Owner during construction operations to minimize conflicts and facilitate Owner's usage. Perform the work so as not to interfere with the Owner's operation. Conform to the Owner's security procedures for access to the building and site, also for control of the work area, tools and materials.
8. If hazardous materials are encountered during construction, removal or demolition operations, comply with applicable regulations, laws and ordinances concerning removal, handling and protection against exposure or environmental pollution.

9. Perform all tasks involving utilization of products which emit noxious fumes so far as to prevent fumes from entering the building. Provide proper ventilation to remove hazardous fumes.
10. If it becomes necessary to produce excessive noise during the construction operations, the Contractor shall so advise the Owner and times shall be scheduled at the Owner's convenience.
11. Prior to any construction activity, Contractor shall take pictures of the existing conditions of the building, interior equipment and adjacent elements that may be misconstrued as damage related to construction operations. Photographs inside the building are subject to the security requirements of the facility.
12. The Contractor shall leave no area unsafe or unsecured at the end of the work day.
13. It shall be the Contractor's responsibility, to field verify all existing conditions and dimensions prior to submitting bids.
14. Drawing HC-1 is provided for informational purposes only.

I. Basis of Award:

1. This contract will be awarded to the responsible bidder who submits the lowest responsive evaluated total bid. However, the Department of General Services reserves the right to award the contract based on fund availability.

J. Hours and Point of Contact:

1. The work hours of the facility are Monday through Friday, 7:00 AM to 5:00 PM.
2. Point of contact for the Historic St Mary's City is Joe Kangas, 1-240-895-4964.
3. The DGS Project Manager is Kenneth Langkam, 410-935-1685.
4. Site visits are encouraged for all bidders prior to submitting bid (Pre-Bid Meeting). No unannounced site visits will be permitted.

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

- A. The Owner may elect certain aspects of the work, whose quantity cannot be determined at this time, to be performed or deleted by the Contractor. If such work items are elected or are not performed, the Contract price will be adjusted accordingly by the Unit Price amount shown for each item in the Bid Forms.

1.2 GENERAL CONDITIONS

- A. A Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.
- B. By submitting a bid, the Contractor acknowledges acceptance of the established Unit Prices for their use in determining the value of change work. Prices as stated will remain in effect until final completion of the Contract.
- C. Performance of Work not authorized by a Change Order or Field Order, whether or not such work is set forth hereunder as a Unit Price item, shall not be considered cause for extra payment beyond the Contract Sum.

1.3 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Prior to commencing removal or replacement of materials set forth in the schedule of Unit Prices, the Contractor shall notify the Owner in sufficient time to permit proper inspection and measurements to be taken. Only quantities that have been approved in writing by the Owner will be considered in determination of adjustments to the Contract Amount.
- C. Unit Prices and quantities are provided to adjust the specific work items because quantity of work is unknown. Work of similar scope as those unit price items contained in and defined by the Construction Documents shall not be considered as Unit Price Work.
- D. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent inspector acceptable to Contractor.
- E. List of Unit Prices: A list of unit prices and quantities to be provided in the Base Bid is included in Part 3. The quantities shown in the list of unit prices shall include the quantities shown on the

drawings. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

- A. Unit Price 1-For replacement of wood decking to match existing.

Estimated Quantity: 50 square feet.

END OF SECTION 012200

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires DGS/PM responsive action.
- B. Informational Submittals: Written information that does not require DGS/PM's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. DGS/PM reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on DGS/PM receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. DGS/PM will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
- C. Identification: Place a permanent label or title block on each submittal for identification.
 - 1. Indicate name of firm or entity that prepared each submittal on label or title block.

2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by DGS/PM.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Contractor.
 - d. Name and address of subcontractor.
 - e. Name and address of supplier.
 - f. Name of manufacturer.
 - g. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
- D. Deviations: Deviations from specifications are considered substitutions. Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals as proposed substitutions. Further identify deviations by providing a written description for each deviation or variation from the contract documents.
- E. Additional Copies: Unless additional copies are required for final submittal, and unless DGS/PM observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
- F. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. DGS/PM will discard submittals received from sources other than Contractor.
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked "Approved or approved as noted."
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Use only final submittals with mark indicating "Approved or approved as noted" taken by DGS/PM.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Manufacturer's catalog cuts.
 - e. Compliance with specified referenced standards.
 - 4. Number of Copies: Submit four copies of Product Data, unless otherwise indicated. DGS/PM will return two copies. Mark up and retain one returned copy as a Project Record Document.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal of CAD Drawings is otherwise permitted.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Shopwork manufacturing instructions.
 - f. Templates and patterns.
 - g. Schedules.
 - h. Notation of coordination requirements.
 - i. Notation of dimensions established by field measurement.
 - j. Relationship to adjoining construction clearly indicated.
 - k. Seal and signature of professional engineer if specified.
 - 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
 - 3. Number of Copies: Submit two opaque (bond) copies of each submittal. DGS/PM will return one copy.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of appropriate Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. DGS/PM will return submittal with options selected.
 5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of Samples. DGS/PM will retain two Sample sets; remainder will be returned.
- E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.
1. Number of Copies: Submit three copies of product schedule or list, unless otherwise indicated. Architect will return one copy.
- F. Construction Schedule: Construction schedule showing sequence and duration of activities.
- G. Schedule of Values: Itemize separately labor and materials for each technical section within the Specification as they will be shown on the Application for Payment (use AIA form G703).
- H. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.
1. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. DGS/PM will return one copy.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 - 1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. DGS/PM will not return copies.
 - 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - 3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."
- B. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- C. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- D. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- E. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- F. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- G. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- H. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- I. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- J. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
- K. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
 - 1. Statement on condition of substrates and their acceptability for installation of product.

2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
- L. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- M. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to DGS/PM.
1. DGS/PM will not review submittals that include MSDSs and will return them for resubmittal.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to DGS/PM.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 DGS/PM'S ACTION

- A. General: DGS/PM will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: DGS/PM will review each submittal, make marks to indicate corrections or modifications required, and return it. DGS/PM will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.
- C. Informational Submittals: DGS/PM will review each submittal and will not return it, or will return it if it does not comply with requirements. DGS/PM will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes requirements for the provision and utilization of temporary facilities to protect the Owner's property, the site, and construction materials, and for daily maintenance and cleanup of the site during the project.

1.2 CONTRACTOR'S USE OF EXISTING FACILITIES

- A. Limit use of the premises to the work indicated, so as to allow for the Owner's uninterrupted occupancy and use. Confine operations to the areas indicated under the Contract. Conformance to the regulations set forth by the Owner regarding use of existing facilities is mandatory.
- B. Sanitary facilities shall be provided by the Contractor. Use of the building's sanitary facilities is not permitted.
- C. Owner will assist in controlling occupancy. Contractor shall provide and place portable barricades, as coordinated with the Owner, under work areas inside the building.
- D. Clean interior and exterior areas affected by the construction on a daily basis. Do not allow construction debris, waste materials, tools, excess packaging materials or other construction related materials to accumulate on the roof, in the facility, or on the exterior grounds and pavements.
- E. See Division 01 Section "Product Delivery Requirements" for product storage facilities and requirements.

1.3 UTILITIES

- A. Electrical service will be provided to the Contractor free of charge by the Owner through exterior electrical outlets if available and operable. Use shall be limited to construction hours. The Owner reserves the right to charge the Contractor for excessive electrical service usage (i.e., wasteful usage). Should charges be considered, the Owner will notify the Contractor in writing of his intent, 48 hours in advance.
- B. Water for construction purposes will be provided to the Contractor free of charge by the Owner through exterior water spigots if operable. The Owner reserves the right to charge the Contractor for excessive or wasteful use. Should charges be considered, the Owner will notify the Contractor in writing of his intent, 48 hours in advance. Drinking water shall be provided by the Contractor.
- C. All other utilities required will be provided by the Contractor.
- D. Plumbing, heating, and electrical work, including reinstallation of equipment and other work to be performed by the Contractor, shall be carried out without interference to the building's normal

operation. Where work requires interruption of service, the Contractor shall make advance arrangements with the Owner for dealing with such interruption.

- E. Ensure proper and safe operation and maintenance of utility systems within the construction limits, whether these are supplied by the Owner's distribution system or otherwise, until the work is accepted by the Owner. Maintain and operate appurtenances within the construction area that serve the distribution system, subject to periodic inspection by the Owner's operating personnel. Inspection by any representative or personnel of the Owner shall not relieve the Contractor of his responsibilities in connection with operation and maintenance of these facilities and equipment.

1.4 ACCESS

- A. Provide ladders, scaffolding and staging as required to access the project area(s) in accordance with OSHA and MOSHA guidelines. Should damage to the building occur, restore damaged areas to their original condition, clean up debris, and provide other access to the roof for the duration of the project.
- B. Do not interfere with normal building operations. Coordinate activities with the Owner and building occupants.

1.5 BARRIERS

- A. Install temporary fencing, warning lines, barriers and guards, as required, to segregate the construction areas from adjacent operational facilities, occupants and the public. In the event that access cannot be interrupted in the construction area, provide protection above doorways and walks in the construction area. Provide guard lights on barriers and lighting as necessary to prevent vandalism of work and storage areas. The Owner is not responsible for Contractor's losses due to damage or theft by vandals.
- B. Install protective coverings at paving and building walls adjacent to hoist prior to starting work. Lap protective coverings at least 1 foot, secure against wind, and vent to prevent condensation of moisture on covered surfaces. Maintain the protective coverings in place for the duration of the project. Cover windows adjacent to Contractor operation areas with plywood.

1.6 TEMPORARY PROTECTION

- A. Provide suitable Owner approved temporary protection to prevent the entrance of debris and obstructions into the building. Provide warning signs to reroute personnel around areas of dangerous work. Place warning barriers at roof perimeters and at deck openings. Clearly label temporary covers over deck openings. Do not permit openings to remain unprotected overnight. Schedule operations to allow for completion of new roofing over a predetermined area of roof within a day's work. Use special care to avoid damaging roofing and flashing when working on the roof of the building.
- B. Provide temporary tie-ins between existing and new roof systems as specified and detailed. Tie-in construction shall completely prevent interior leaks, migration of moisture from existing to new construction and damage of any type to the facility. Provide necessary quality control at tie-ins on a daily basis to prevent leaks.

- C. Avoid traffic on completed roof areas. Coordinate work to prevent this situation. Should temporary access be required, provide temporary substrate protection for trafficked areas.
- D. Protect drainage systems from debris accumulation during construction. Ensure roof drains and leader pipes are not restricted when Contractor is not on site.
- E. Protect materials scheduled to be reused from damage by placing them in labeled containers or wrappings stored in a weathertight trailer.
- F. Provide temporary protection such as plywood and tarps for streets, drives, curbs, sidewalks, landscaping and existing exterior improvements during all phases of the project.

1.7 ROOFTOP PROTECTION

- A. Provide plywood walkways, with 1/2-inch thick rubber walkway pad or 1-inch thick high density insulation protection beneath, for protection of new or existing roof areas which must be trafficked, and for roof membrane protection below demolition work which occurs above new or existing roof areas.

1.8 DEBRIS REMOVAL

- A. The Owner shall designate crane and refuse container locations. These areas shall be sectioned off with proper warning lines.
- B. Removed materials shall not be thrown freely from the roof but shall be lowered to the ground by crane in suitable containers or in an enclosed chute, in order to reduce the spread of dust and other debris.
- C. Supply adequate covered receptacles for waste, debris and rubbish. One receptacle will be allowed on site at a time, and must be immediately removed from the site when full. Clean the project area daily and prior to moving the receptacle to another location on the site. Locations shall be as permitted by the Owner. Disposal shall be off-site in a legal dump authorized to accept construction demolition solid wastes.

1.9 WEATHER PROTECTION

- A. Weather protection includes temporary protection of components adversely affected by moisture, wind, heat and cold by covering, patching, sealing, enclosing, ventilating, cooling and/or heating. Provide protection for locations within the project area as necessary, to protect the building and its contents, trafficked adjacent areas, new construction materials and accessories. The cost of heat, fuel and power necessary for proper weather protection shall be the responsibility of the Contractor.

Installed weather protection shall comply with safety regulations, and provisions for adequate ventilation and fire protection.

1.10 VOLATILE MATERIALS

- A. The Contractor is reminded that adhesives, solvents, bitumens, etc., are highly volatile and flammable materials. These materials, along with tools and applicators and rags, shall not be stored on or within the building. No overnight storage on the roof will be allowed. Do not transport materials through the building. Take precautions and closely follow the Specification requirements for fire protection on site during construction.
- B. Locate and use flame-heated equipment so as not to endanger the structure, other materials on site, or adjacent property.

1.11 FIRE PROTECTION

- A. Provide necessary temporary fire protection for the building, its contents and materials during construction. Do not store combustibles inside the building or on the roof. Store adhesives, caulks and cleaning solvents away from the building using a method approved by local fire officials. Should cutting, burning or welding be necessary, provide a fire watch during operations and for four hours minimum after completion of the operations.
- B. Do not use open flames near adhesives, caulks or cleaning solvents as they will readily ignite. Rags soaked with cleaning solvent shall not be discarded in the dumpsters, but shall be stored in a separate metal receptacle and removed from the site daily.
- C. Comply with local fire codes and obtain permits necessary from the local fire department. Provide a copy to the Owner. Provide recently tested, fully charged fire extinguishers around the storage area, rubbish receptacle and two fire extinguishers on the roof within 50 feet of the Work.

1.12 INTERIOR PROTECTION AND RESTORATION

- A. Protect and cover fixed items, furniture, equipment, appliances, fixtures, bookcases, etc. within the building below the work areas.
- B. At the Owner's direction, remove portable furniture, equipment, appliances, fixtures, materials, stock, etc. within the building below the work area to an adjacent area for protection.
- C. Remove, temporarily support, suspend and protect existing items requiring removal during the installation of the new work and properly replace these items to their original condition and to the Owner's satisfaction. These items include but are not limited to suspended ceilings, lighting fixtures, heating and air handling ductwork, electrical conduit, etc.

1.13 CLEAN-UP

- A. Clean and restore interior building spaces beneath the work areas to original condition prior to the construction.
- B. Debris, dust and dirt shall be swept completely clean at the joists, beams, overhead accessories and similar items. Those items soiled or stained from the work shall be cleaned and refinished.
- C. Electrical fixtures damaged by the construction shall be replaced with an equal in shape, color, manufacturer, and capacity at no added expense to the Owner.

- D. Interior ceiling finishes which are damaged by the construction shall be repaired or replaced with a system equal in color, texture, and finish at no added expense to the Owner.
- E. Floors shall be swept and vacuumed completely clean of dust, dirt and debris. The Owner will wash and rewax floors, but only as part of a normal or routine maintenance procedure. Heavily soiled, stained or damaged floor areas will be cleaned, repaired and/or replaced by the Contractor at no additional cost to the Owner.
- F. Open ducts, grills, thermostats, electric boxes or similar fixtures and items which can be soiled or affected by the work or which might conduct dust to other areas shall be masked, protected and cleaned by the Contractor.
- G. Windows, blinds, curtains, shelving, edges, lighting, etc. shall be cleaned to their original condition prior to the start of the roof renovation, and to the satisfaction of the Owner.
- H. Remove completely temporary protection materials and facilities from the site upon completion of the work and demobilization of the project.
- I. Restore streets, drives, curbs, sidewalks, landscaping and existing improvements disturbed by the construction operations to their condition at the start of the work.

1.14 NOTIFICATION

- A. Notify the Owner's Representative at least 72 hours in advance of the desire to extend, connect, disconnect, turn on or off HVAC, steam, electric, water or other service from the Owner's supply systems. The actual operation shall be witnessed by authorized representatives of the Owner. Plumbing, heating and electrical work, including installation of equipment and any other work to be performed by the Contractor, shall be carried out without interference with the Owner's normal operation. Where work requires interruption of a service, make advance arrangements with the Owner for dealing with such interruption.

1.15 VEHICLES

- A. Acceptable areas for the locations of the Contractor's vehicles shall be as designated by the Owner. No other areas may be utilized without the Owner's permission.

1.16 WALKWAY COVERING

- A. Install walkway coverings where designated on the drawings or above entrances which must remain accessible. The framework supporting the walkway covering shall be free-standing and well braced. The roof covering and support framing shall be designed to support a live load of at least 150 psf. The roof coverings shall be of width sufficient to cover the entire walkway or sidewalk. A minimum height clearance of 6-feet, 8-inches, or as required to allow building doors to open, shall be maintained below coverings. Should coverings obscure the building's address, a temporary address shall be installed so as to be visible from the street. Lettering shall be approved by the Owner. Protection shall be in accordance with all applicable OSHA standards.

1.17 CONSTRUCTION SIGN

- A. Provide 6ft by 8ft construction sign in accordance with the IAC Administrative Procedures Guide, Appendix E. Sign can be purchased from the Maryland correctional Enterprises (MCE). To order signage, contact MCE located at 7555 Waterloo Road, Jessup, Maryland 20794 (410799-5102).
- B. Construction sign must be fixed and braced to resist anticipated wind loads. Sign must be located in a conspicuous location.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Portable Chain-Link (Site Enclosure) Fencing: Minimum 2-inch, 9-gage, galvanized steel, chain-link fabric fencing; minimum 8-feet high with galvanized steel pipe posts; minimum 2 3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Provide concrete bases for supporting posts.
- B. Lumber and Plywood: Unless noted otherwise, comply with requirements in Division 06 Section "Rough Carpentry."
- C. Paint: Comply with requirements in Division 09 Section "Painting."

2.2 TEMPORARY FACILITIES

- A. General: Maintain all temporary facilities and controls necessary for the performance of the Work. Comply with all applicable codes and regulations of authorities having jurisdiction; obtain permits as required. Locate and install all facilities and controls where acceptable to the local authorities having jurisdiction, utility, and Owner and remove same and terminate, in a manner suitable to the utility owner, at completion of the Work or when otherwise directed. Pay all costs associated with the provision and maintenance of temporary facilities and controls including power, water, and fuel (if any) consumed until Substantial Completion.
- B. Storage and Staging Areas: The Contractor shall be responsible for coordination, protection, and safekeeping of products stored on site under this Contract including soil cut and fill. Refer to Contract Documents for any defined staging areas.
 - 1. Move stored products that interfere with construction of the Work, or operations of the Owner or separate contractors.
 - 2. Obtain any pay for use of additional storage or staging areas as needed for the Work.
 - 3. Provide storage areas sized to storage requirements for products of individual Sections, allowing for access and orderly maintenance and inspection of products.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

- B. Heating Equipment: Unless Owner authorizes use of permanent heating system, provide UL Listed or FM approved vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 3 - EXECUTION (Not Used)

END OF SECTION 015000

SECTION 016500 - PRODUCT DELIVERY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section contains instructions and requirements for the provision and maintenance of adequate delivery, storage, and handling on site of products and materials to be utilized in the Work.

1.2 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 2. Store materials in a manner that will not endanger Project structure.
 - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 4. Store cementitious products and materials on elevated platforms.
 - 5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 - 6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 7. Protect stored products from damage and liquids from freezing.
- D. Deliver materials in sufficient quantity to allow continuity of work. Deliver materials to the site in original sealed containers bearing manufacturer's name and brand designation. Where materials are designated by a referenced specification, containers or packages shall bear specification number, type, and class as applicable. Do not deliver materials that are not approved for use. Remove such materials from the site immediately.

- E. Store roofing materials on site in areas designated by the Owner. Materials are to be stored in box trailers or in elevated piles completely wrapped in waterproof tarps. Tilt stock piles for effective drainage and utilize tie-downs to protect tarps against wind blow-offs. Store flammable materials such as adhesives in storage containers suitable for flammable substances. Mark materials that are exposed to the elements for removal from site. Do not incorporate defective or rejected materials in the Work.
- F. Handle materials with equipment selected and operated so as not to damage the materials or the roofing. Handle roll materials in a manner to prevent damage to the edges or ends. Seal containers when their contents are not being used to prevent premature curing or damage to materials. Damaged or improperly stored materials shall be marked and removed from the site immediately.
- G. No more materials shall be stored on the roof than can be installed in one day. Distribute materials brought to the roof so that the uniform load shall be less than 20 PSF. Evenly distribute materials for daily operations to prevent concentrated loads. The weight of workmen, equipment and materials shall not exceed the capacity of the structure.
- H. Misshapen, oval, creased, and/or damaged roll goods shall not be used in the new roof system. The Contractor shall handle and store roll materials to prevent such conditions. The Contractor shall also ensure that roll goods accepted from the manufacturer are in good condition. The Owner will not be responsible for, nor accept, roll goods that are defective.

1.3 TOOLS AND EQUIPMENT

- A. Contractor is responsible for delivery, storage, maintenance, and security of tools and equipment.

1.4 INSPECTION AND NOTIFICATION

- A. Materials stored on site and subject to damage from wind, precipitation, hail, or other potential climactic conditions will be subject to inspection on a daily basis by the Owner or Owner's Representative. Absorptive materials such as lumber, insulation and felts will be tested periodically for moisture content.
- B. Upon notification by the Owner or Owner's Representative of insufficient protection of or damage to materials on site, the Contractor shall, within 24 hours, properly restore protection and replace or repair damaged materials and systems. Should the Contractor not accomplish immediate repair or replacement when notified, the Owner shall have the proper protection installed at the Contractor's expense.

1.5 MANUFACTURER'S INFORMATION

- A. Submit the roofing system materials manufacturer's written instructions concerning storage and handling of materials, including adhesives, cements, sealants, and accessories. Provide the following information:
 - 1. Manufacturer's "shelf-life" of materials including the date of manufacture of perishables such as volatiles, caulking, and mastics.
 - 2. Acceptable latent moisture content for absorptive materials such as lumber, insulation and felts.

3. Manufacturer's requirements for storage facilities concerning temperature, humidity, and ventilation.
- B. Provide and maintain on site manufacturer's information concerning storage and handling of flammable or volatile materials, such as Material Safety Data Sheets, for the duration of the project.
- C. Comply with the manufacturer's recommendations and these Specifications for on site storage of materials.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 016500

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout.

1.2 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 3. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 4. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 5. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 6. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
 - 7. Submit certificate of manufacturer's inspection.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, DGS/PM will either proceed with inspection or notify Contractor of unfulfilled requirements. DGS/PM will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by DGS/PM, that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1.4 CORE SAMPLES

- A. The Owner reserves the right to have core sampling performed by the Contractor where moisture contamination is suspected within the new roof system until the expiration of the Contractor's warranty. Core sample locations shall be chosen by the Owner and be performed at no cost to the Owner.

1.5 WARRANTIES

- A. Submittal Time: Submit manufacturer's warranties and contractor's guarantees on request of DGS/PM for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

1.6 PROJECT CLOSEOUT SUBMITTALS

- A. When both the Owner or Owner's Representative and the Manufacturer's Representative agree that the Contractor has performed according to the Specifications and has installed the materials to the satisfaction of the Manufacturer, submit the following:
 - 1. Specified Contractor's and Manufacturer's Warranties and Guarantees.
 - 2. Lien Releases from Contractor, subcontractor, and suppliers (AIA Forms G706, G706A).
 - 3. Consent of Surety to Final Payment (AIA Form G707).

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

SECTION 017800 ROOFING STANDARDS

*Procedure Manual for Professional Services
Roofing Standards
July 2019 VII-1*

TITLE: STANDARDS FOR NEW ROOFING *July 2019*
CONSTRUCTION, RE-ROOFING CONSTRUCTION
AND ROOFING SYSTEM GUARANTEE REQUIREMENTS

Responsible Organization: Office of Facilities Planning
Instructions: This Manual supersedes the DGS Procedure Manual for Professional Services dated *July 2015*. Please recycle the superseded document.

1 GENERAL

1.1 FOR NEW BUILDING PROJECTS, the selection of either a steep Slope or low slope roofing system shall be based on the results of a 60 year life cycle cost analysis. This analysis shall consider the scope impact on building structural, mechanical and electrical systems required to configure the building for a steep slope and a low slope roofing system, as well as the maintenance and replacement intervals and costs for both roofing systems.

1.2 FOR ROOF REPLACEMENT PROJECTS, the selection of the Replacement roofing system shall be based on an evaluation of costs associated with factors affecting the proposed system, including span dimension, structural condition, foundation design/capacity, and disposition or accommodation of roof top equipment.

1.3 ROOFS ON NEW CONSTRUCTION shall be pitched to drains or Gutters, with the roof slope achieved structurally.

1.4 REFERENCES TO NATIONAL STANDARDS DOCUMENTS such as the American Society for Testing Materials (ASTM), American National Standards Institute (ANSI), Factory Mutual System (FM), Underwriters' Laboratories (UL), International Building Code (IBC), American Institute of Steel Construction Manual (AISC), Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA), National Roofing Contractors Association (NRCA), National Institute of Standards and Technology (NIST), Asphalt Roofing Manufacturers Association (ARMA), etc., shall be interpreted to refer to the most current edition or revision in effect at the time a design is in progress as this takes precedence.

1.5 ALL MATERIALS used for roofing systems shall be asbestos free.

1.6 A SITE VISIT to verify existing conditions will be made for all roof replacement and roof repair projects to verify existing conditions and dimensions even though as-built drawings are

provided. Where composition, thickness or make up of the existing roof system or any of its components cannot be determined by visual means alone, an exploratory investigation shall be conducted to include dismantling or opening up a representative portion of the roof system. Patch and make watertight all areas disturbed during investigation.

2 STEEP SLOPE ROOFS

2.1 STEEP SLOPE ROOFS with a minimum slope of 2-1/2 inches per foot, may be finished with a standing seam metal or sheet metal system or a fiberglass shingle system surfaced with ceramic coated mineral aggregate. All steep slope roofs must have a full width (36") of modified bitumen ice dam protection membrane installed at all eaves and valleys.

2.2 STANDING SEAM METAL ROOFING SYSTEMS shall be fabricated metal panel systems from nominal 22 gauge G-90 galvanized steel conforming to ASTM A446 Grade A and ASTM A525. Alternative panel thickness of 24 gauge or 20 gauge may be considered based on an Evaluation of roof framing and purlin spacing. All standing seams shall be double locked with a seam height no greater than 12 inches. The system shall conform to the requirements of ANSI Publication A58.1, the IBC Chapter 15, and the American Institute of Steel Construction Manual. The panels shall have a UL Class 120 rating and the structural uniform uplift load capacity shall be in accordance with ASTM E330. The finish shall be equal to at least 70% Kynar and shall be tested in accordance with ASTM procedures. The system shall have a 20 year manufacturer's weatherproof warranty. The Kynar color finish shall also be covered by a 20 year manufacturer's warranty.

2.3 ASPHALT SHINGLES shall be reinforced with fiberglass wind resistant type, UL Class A, and comply with ASTM D3462 and ICBO ESAC 127. Shingle manufacturer shall provide a 40 (+) year warranty (minimum) covering repair or replacement of defective shingles as necessary to eliminate leaks. Ventilation must be accounted for, per shingle manufacturers recommendations. Metal drip edges must be installed on all eave and rake edges.

2.4 SPECIAL ROOFS: Under special conditions relating to aesthetic compatibility with surrounding buildings or historical consideration, the use of clay tiles, slate tiles, or cedar shakes may be deemed appropriate. In these cases specifications and details shall be developed in strict accordance with applicable national standards. The roofing tile or slate manufacturer/quarrier shall provide material defects warranty coverage of 20 years minimum to 50 years or more based on the specific roof material and facility under consideration.

2.5 STEEP SLOPE ROOFS: Shall be provided with adequate means for interior ventilation through eave or soffit louvers, ridge vents, ventilation boards and thermostatically controlled power fans to prevent moisture condensation and excessive heat under roofing or sheathing. Insulation shall be provided in the attic space above the ceiling and shall achieve an insulation value of *R-38*.

3 LOW SLOPE ROOFS

3.1 LOW SLOPE ROOFS: Shall be required to have a minimum slope of 1/4 inch per foot. New buildings shall be designed to achieve the minimum slope of 1/4 inch per foot structurally. Existing buildings may have to be provided with tapered insulation to achieve the minimum slope. Lightweight concrete shall not be used to create slope.

3.2 PRIOR TO PLACEMENT OF INSULATION and the roofing system, all low slope roof decks shall have:

- A. Steel Deck: 1" perlite insulation mechanically fastened and 2 plies of fiberglass felts.
- B. Concrete Deck: Asphaltic primer and 2 plies of fiberglass felts.
- C. Nailable Decks: (other than Wood, Lightweight Concrete, Gypsum, and Tectum) Rosin-sized sheathing paper, 75 lb. ventilated base sheet, mechanical fasteners dictated by deck type, and 2 plies of fiberglass felts.
- D. Wood Decks: Mechanically fasten 1" thick perlite insulation to deck and install 2 plies of fiberglass felts with hot asphalt.

- (1) If wood deck is less than 3/4" thick, nail base sheet to deck and install 2 plies of fiberglass felt over base sheet.

3.3 ON LOW SLOPE ROOFS from 1/4 inch per foot to 2-1/2 inches per foot all felt plies shall be back-nailed on slopes greater than 2 inches per foot and the following roofing system shall be used:

A. Four Ply Built-up System: The system consists of four plies of roofing felts alternately placed, overlapped and saturated with hot asphalt bitumen. Gravel surfacing to be set in hot asphalt. Roofing felts shall be glass fiber and meet the requirements of Tables 1 and 2 ASTM D-2178 Type VI (Asphalt Impregnated). Steep roofing asphalt shall conform to ASTM D-312, Type III.

B. Single-Ply Membranes: Thermoplastic Polyolefin (TPO) membrane roof assemblies are acceptable, as long as all warranty requirements listed in 3.3C are met. All other single-ply membranes, as well as vegetative ("green") roof assemblies, will be considered in some circumstances.

C. Warranty: The roofing system shall be covered by a 20 year Total System, No Dollar Limit (NDL) Warranty and must include all flashings and sheet metal work. All materials and workmanship are to be fully guaranteed by the roofing manufacturer issuing the warranty. All materials must be manufactured by the manufacturer who is to supply the warranty. Any materials that are not made by the Roofing Materials Manufacturer but submitted for approval must be accompanied by a letter from the Roofing Materials Manufacturer issuing the 20 year NDL warranty, stating that this material is suitable for use with their system and fully covered under their 20 year NDL warranty.

4 INSULATION

4.1 ALL LOW SLOPE ROOFING SYSTEMS shall include insulation. The majority of insulating value shall be accomplished with the necessary thickness of flat poly-isocyanurate boards. Where necessary, roof slope shall be developed with tapered perlite or tapered poly-isocyanurate board. Organic insulation material shall not be used under built-up roofs. Light weight concrete insulating fill is not acceptable. In all cases a minimum 1/2" cover board **must** be installed over the Isocyanurate insulation. Perlite and **"Densdeck"** are acceptable cover board materials.

4.2 HEAT TRANSMISSION: Insulation heat transmission values shall be established in accordance with the Energy Conservation Guidelines, Chapter V *and Code Update of 2019 DGS Procedure Manual*. For new buildings the suggested insulation value of the roof area envelope is **R-30CI (Cont.Insul)** for low slope roofs. For roof replacements/renovations on older buildings, a lower "R" value will be considered.

4.3 STRUCTURAL: The first ply of insulation systems over metal decks and wood decks shall be mechanically fastened using steel fasteners acceptable to the manufacturer furnishing guarantee of roofing system. Insulation shall also be installed in accordance with Factory Mutual System Class 120 wind uplift guidelines.

4.4 INSULATION shall be applied in several layers, with the joints staggered, in accordance with the manufacturer's recommendation.

4.5 COMPATIBILITY: Insulation material installed between the roof deck and the roof ply shall be compatible with the roof ply material and asphalt bitumen binder or other adhesive used in the roofing system.

4.6 WARRANTY: Insulation materials shall be considered an integral component of the roofing system, and shall be furnished or approved by the roofing system manufacturer, and shall be covered fully by the roofing system warranty.

5 FLASHING

5.1 BASE FLASHING is part of the roofing system and shall meet requirements of manufacturer furnishing roofing system. Where roof meets a parapet or adjacent building wall, the base flashing shall extend up the wall at least 8 inches, but generally not more than 14 inches unless necessary to be consistent with existing conditions or design requirements. If flashing height is greater than 14 inches, a 2 piece flashing system may be required.

5.2 OTHER FLASHING: Other than base flashing - metal flashing, including expansion joint flashing, shall be in accordance with Roofs. SMACNA Standards and the NRCA Roofing and Waterproofing Manual and fully covered under the 20 year NDL warranty.

5.3 PITCH POCKETS SHALL BE AVOIDED. Where that is not possible, pitch pockets shall be filled with a pourable urethane sealer. Roof penetrations will be flashed with preformed flexible

flashing, using clamps and tents, unless the penetration is such a complex shape that a pitch pocket is required.

5.4 ALL PARAPET WALLS must be covered with a metal coping cap over a peel and stick type modified bitumen membrane and any necessary wood blocking/nailers, etc.

6 ROOF DRAINS

6.1 ROOF DRAINS shall be provided with shallow sumps, gravel stops, and minimum 4.0 pound lead flashing in accordance with the NRCA Roofing and Waterproofing Manual and the International Plumbing Code.

6.2 ROOF DRAINS shall be located wherever possible at the low points, and crickets must be provided between drains in structurally formed valleys and around any structure impeding the flow of water in the drain field to assure positive water flow to the drains.

6.3 ROOF DRAINAGE PATTERNS should be designed to locate roof drains at the mid-points between columns and beams. Overflow scuppers should be provided through perimeter parapet walls, or overflow relief drains should be provided at roof drain locations, to relieve storm water build-up caused by clogged roof drains.

6.4 ROOF DRAINAGE that is directed to exterior downspouts, splash blocks shall be provided at all ground discharge points. Where possible, downspouts may discharge directly into a storm drainage system.

7 ROOF ACCESS

7.1 PERMANENT ACCESS to all roof areas from the inside of the building shall be provided (with a roof hatch and a ship type ladder) for all buildings over two stories high with low slope roofs.

7.2 ROOF ACCESS for one and two story buildings with low slope roofs and for buildings with steep slope roofs will be evaluated based on building and roof configuration and roof type.

7.3 EXTERIOR ACCESS must be provided for all multi-level roofs from the second story up.

8 ROOF MOUNTED EQUIPMENT

8.1 ROOF MOUNTED EQUIPMENT shall be minimized; penthouse enclosures of equipment are preferred.

8.2 ROOF MOUNTED EQUIPMENT shall be installed on curbs and provided with suitable vibration isolation devices and proper flashing.

8.3 IF IT IS NECESSARY TO MOUNT EQUIPMENT ABOVE THE ROOF, without

using a curb, sufficient clearance shall be provided under the equipment to permit maintenance of the roofing system, as well as adequate clearance for future roof replacement.

8.3 EQUIPMENT SCREENS must be provided to conceal all roof top equipment.

8.4 INORGANIC WALKING PADS shall be provided from roof access to roof mounted equipment. Modified bitumen membrane is acceptable.

9 CONTRACTOR'S GUARANTEE

9.1 THE CONTRACTOR must have at least 5 years experience installing the type of roofing they are bidding on.

9.2 THE CONTRACTOR must be a NDL certified roofing system installer for at least 5 years continuously (currently), and must provide to the State a current letter from a roofing materials manufacturer stating this and that their workmanship, including flashings and sheet-metal work, will be fully covered by the Manufacturers= 20 year >NDL= warranty without exception.

9.3 THE CONTRACTOR must also provide the State with a minimum 2 year workmanship guarantee.

10 GREEN ROOFING SYSTEMS (see Section 3.3B)

10.1 GREEN ROOFING SYSTEMS shall comply with the requirements of 2018 International Building Code (IBC), Chapters 15 and 16, and High Performance Green Building Program of 2019 DGS Procedure Manual. All systems must comply with ANSI/SPRI VF-1 and current ANSI wind design guidelines.

10.2 INTENSIVE GREEN ROOFS shall be designed for uniform design live load in the landscaped area as indicated in Section 1607.13.3.1 of IBC 2018. The weight of the landscaping materials shall be considered as dead load and shall be computed on the basis of saturation of the soil.

10.3 EXTENSIVE GREEN ROOFS shall be designed for a minimum uniform live load of 100 psf as per Table 1607.1 of IBC 2018.

10.4 THERMO PLASTIC SINGLE PLY ROOFING shall comply with Chapter 15 of the IBC and shall have a minimum slope of ¼" + 1'-0" (2%). The roof covering shall comply with ASTM D6878.

10.5 PHOTOVOLTAIC PANELS AND MODULES installed on a roof shall comply with requirements of IBC 2018 and International Fire Code.